ACHERKAN, Naum Samoylovich, zasl. deyatel' nauki i tekhniki RSFSR, doktor tekhn. nauk, prof.; GAVRYUSHIN, A.A.; YERMAKOV, V.V.; IGNAT'YEV, N.V.; KAKOYLO, A.A.; KUDINOV, V.A.; KUDRYASHOV, A.A.; LISITSYN, N.M.; MIKHEYEV, Yu.Ye.; PUSH, [illegible]; TROFIMOV, O.N.; FEDOTENOK, A.A.; KHOMYAKOV, V.S.; ABANKIN, V.I., inzh., retsenzent

[Metal-cutting machines in two volumes] Metallorezhushchie stanki. [v dvukh tomakh]. Pod red. N.S.Acherkana. Moskva, Mashinostroenie. Vol.2. 2. perer. izd. 1965. 628 p. (MIRA 18:12)

ACHERKAN, N.S., doktor tekhn. nauk, prof., zasl. deyatel' nauki i tekhniki RSFSR; GAVRYUSHIN, A.A., kand. tekhn. nauk; YERMAKOV, V.V., kand. tekhn. nauk, dots.; IGNAT'YEV, N.V., kand. tekhn. nauk, dots.; KAKOYLO, A.A., inzh.; KUDINOV, V.A., kand. tekhn. nauk; KUDRYASHOV, A.A., kand. tekhn.nauk, dots.; LISITSYN, N.M., kand. tekhn. nauk, dots.; MIKHEYEV, Yu.Ye., dots.; PUSH, V.E., doktor tekhn. nauk, prof.; TRIFONOV, O.N., kand. tekhn. nauk, dots.; FEDOTENOK, A.A., doktor tekhn. nauk, prof.; KHOMYAKOV, V.S., kand. tekhn. nauk; ABANKIN, V.I., inzh., retsenzent

[Metal cutting machines] Metallorezhushchie stanki. Moskva, Mashinostroenie. Vol.1. 1965. 764 p. (MIRA 18:10)

TORMOZOV, S.V.; GAVRYUSHIN, N.M.

Improving the organization of snow removal from tracks. Put' put.khoz. 8 no.2:22-25 '64. (MIRA 17:3)

1. Nachal'nik otdela puti Permskogo otdeleniya Sverdlovskoy dorogi (for Tormozov). 2. Zamestitel' nachal'nika otdela puti Permskogo otdeleniya sverdlovskoy dorogi (for Gavryushin).

SKUMBIN, M.K.; SOLONININ,A.V.;SHNEYDER, T.M.; RYASHKO, B.V.; GAVRYUSHIN, N.M.; KHARLANOVICH, I.V.

Complex technology for train and freight operations in a division. Zhel. dor. transp. 46 no.8:14-21 Ag '64.

(MIRA 17:11)

1. Nachal'nik Permskogo otdeleniya Sverdlovskoy dorogi (for Skumbin). 2. Zamestitel' nachal'nika Permskogo otdeleniya Sverdlovskoy dorogi (for Soloninin). 3. Glavnyy inzh. Permskogo otdeleniya Sverdlovskoy dorogi (for Shneyder). 4. Nachal'nik otdela dvizheniya Permskogo otdeleniya Sverdlovskoy dorogi (for Ryashko). 5. Zamestiteli nachal'nika otdela dvizheniya Permskogo otdeleniya Sverdlovskoy dorogi (for Gavryushin, Kharlanovich).

ACC NR: AT6020464 (N) SOURCE CODE: UR/3152/65/000/009/0032/0034

AUTHOR: Gavryushin, V. B.

ORG: none

TITLE: Apparatus for calibrating seismographs

SOURCE: Razvedochnaya geofizika, no. 9, 1965, 32-34

TOPIC TAGS: instrument calibration equipment, seismologic instrument, acoustic damping

ABSTRACT: The apparatus is designed for the visual observation of a seismograph's performance by means of an oscilloscope screen, and for the determination of the resonance frequencies of the seismograph. This design differs from that of Porazhenko in that the commutation of relay contacts is accomplished by means of a sound generator. Calibration should start with a checking of the damping effect. The vertical and horizontal sensitivities of the oscilloscope must be adjusted. It is pointed out, in this connection, that in series-connected oscillographs, the vertical sensitivity is much more than the horizontal sensitivity by the virtue of the design and should be decreased by as much as 50 times. Orig. art. has: 2 figures.

SUB CODE: 08/ SUBM DATE: none/ ORIG REF: 002

Card 1/1

GAVRYUSHIN, V.L.

Germanium power rectifier. Biul. tekh.-ekon. inform. no.10:36-38 '59. (MIRA 13:3)
(Electric current rectifiers)

SAVKYUSHIN, V.L.

New design of 10 kv. power transformers. Nov.tekh.mont. i spets. rab. v stroi. 21 no.1:32-33 Ja '59. (MIRA 12:1)
(Electric transformers)

S/262/62/000/002/014/017
I008/I208

AUTHOR: Puchkov, N. G. and Gavryushin, V. M.

TITLE: On method of combatting corrosive wear of engines using diesel fuels having a high sulphur content

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk. 42. Silovyye ustanovki, no. 2, 1962, 64, abstract 42.2.386. In collection "Khimiya seraorgan. soyedineniy, soderzhashchikhsya neftyakh i nefteproduktakh". M. AN SSSR, 1959, 293-303

TEXT: The mechanism of corrosion is discussed. Different opinions concerning the mechanism of the action of inhibitors added to the fuel and to the lubricant are given. An investigation made with inhibitor Ц-339 (Ts-339) showed a dependence of the abrasive and corrosive wear on the concentration of the inhibitor. A research program on the properties of new local and imported inhibitors which are added to the lubricants ИП-22, (IP22), ДФ-1(DF-1) and Ts-353 (manufactured by Anglomol, Monsanto and others) was started. A short description of pimorted inhibitors added to fuels is given. As a result of the use of zinc naphthenate (.3% of inhibitor added to diesel fuel containing 1% of sulphur) the increased corrosive wear of the bushing was completely overcome and the wear of the rings was decreased; however, clinker formation in the combustion chamber and encrustation of the valves and of the injector nozzle was increased. The presence of inhibitors in the fuel slows down their dissolution in the lubricant. Possibilities of amine-type inhibitors free from metals or containing a small amount of them are pointed out. There are 9 figures and 7 references.

[Abstracter's note: Complete translation.]

Card 1/1

PUCHKOV, N.G.; TRAKTOVENKO, I.A.; BELYANCHIKOV, G.P.; GAVRYUKHIN, V.M.; SAN'KO, Z.A.

Performance characteristics of winter diesel oil from eastern sulfur-bearing crudes. Khim.i tekh.topl.i masel 8 no.1:58-63 Ja '63. (MIRA 16:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gazov i polucheniyu iskusstvennogo zhidkogo topliva. (Diesel fuels)

DEGTYARENKO, N.S., kand.tekhn.nauk; GAVRYUSHINA, R.Yu., inzh.

Reducing the blanks of taps. Nov.tekh.izg.instr. no.2:26-41 '61. (MIRA 15:8)

(Taps and dies)

GAVRYUSHINA, Ye. D.

"Vein valves of the chest cavity in cattle", (Student, Department of Normal Anatomy of Domestic Animals), Collected Works No. 14, of Leningrad Veterinary Institute USSR Ministry of Agriculture, P 258, Sel'khozgiz, 1954.

GAVRYUSHINA, Z.

7079. GAVRYUSHINA, Z. Vecher zanimatel'noy Khimii. Orel, "Orlov, pravda", 1954-28 s. 20sm. (Orlov obl. upr. kul'tury. Metod. kabinet Kul't. -prosvet. raboty). 1.500 ekz. Bespl.-Sost. ukazan na oborote tit. l. -[55-1956]p

374.28(-22):54(47.394)

Knizhnaya Letopis' No. 6, 1955

GAVRYUSHOV, V.V.

Late results of treating embryonal hernias of the umbilicus. Vop. okh. mat. i det. 6 no.12:71-74 D '61. (MIRA 15:3)

1. Iz kafedry khirurgii detskogo vozrasta (zav. - chlen-korrespondent AMN SSSR prof. S.D. Ternovskiy) II Moskovskogo meditsinskogo instituta imeni N.I. Pirogova (dir. - dotsent M.G. Sirotkina) na baze detskoy bol'nitsy imeni N.F. Filatova (glavnyy vrach L.A. Vorokhobov).
(UMBILICUS--HERNIA)

PUGACHEV, A. G., kand. med. nauk; GAVRYUSHOV, V. V.

Preoperative preparation and the management of the postoperative period of newborn infants. Khirurgiia no.6:23-28 Je '62.
(MIRA 15:7)

1. Iz kafedry detskoy khirurgii (i. o. zav. - dotsent A. Ye. Zvyagintsev) II Moskovskogo meditsinskogo instituta imeni N. I. Pirogova na baze Detskoy bol'nitsy imeni N. F. Filatova (glavnyy vrach L. A. Vorokhobov)

(INFANTS(NEWBORN)) (POSTOPERATIVE CARE)

PUGACHEV, A.G., kand. med. nauk; GAVRYUSHOV, V.V.

Use of polychloroethylene tubes for long-lasting intravenous infusion in newborn and breast-fed infants. Klin. khir. no.10: 77 O '62. (MIRA 16:7)

1. Kafedra khirurgii detskogo vozrasta (zav.- chlen-korrespondent AMN SSSR, zasl. deyatel' nauki RSFSR, prof. S.D. Ternovskiy [deceased]) 2-go Moskovskogo meditsinskogo instituta imeni N.I. Pirogova na baze bol'nitsy imeni Filatova.
(PEDIATRICS) (INJECTIONS, INTRAVENOUS)

GAVRYUSHOV, V.V.

Rare form of epigastrius parasiticus in combination with other abnormalities of development. Vop. okh. mat. i det. 7 no.3:86-87 Mr '62. (MIRA 15:5)

1. Iz kafedry khirurgii detskogo vozrasta (ispolnyayushchiy obyazannosti zaveduyushchego - dotsent A.Ye. Zvyagintsev) II Moskovskogo meditsinskogo instituta imeni N.I. Filatova (glavnyy vrach L.A.Vorokhobov).
(MONSTERS) (FOOT--ABNORMITIES AND DEFORMITIES)

DOLETSKIY, S. Ya.; GAVRYUSHOV, V.V.

Symptomatology of asphyxia in newborn infants. Pediatriia 41 no.11:21-31 N'62 (MIRA 17:4)

1. Iz kliniki detskoy khirurgii TSentral'nogo instituta usovershenstvovaniya vrachey (zav. - prof. S. Ya. Doletskiy) i khirurgicheskogo otdeleniya Instituta pediatrii (zav. - kand. med. nauk A.G. Pugachev, nauchnyy rukovoditel' - prof. S. Ya. Doletskiy) AMN SSSR.

PUGACHEV, A.G., kand. med. nauk; GAVRYUSHOV, V.V.

Timing the surgical treatment of teratomas of the sacrococcygeal region in infants. Akush. i gin. no.6:57-60 N-D '63.

(MIRA 17:12)

1. Iz kafedry detskoy khirurgii (zav. - prof. I.K.Murashov) II Moskovskogo meditsinskogo instituta imeni N.I.Pirogova na baze detskoy klinicheskoy bol'nitsy imeni N.F.Filatova (glavnyy vrach L.A.Vorokhobov).

GAVRYUSHOV, V.V.; FRANTOV, R.B.

Postoperative anesthesia in surgery of newborn infants and nursing infants; preliminary report. Khirurgiia 39 no.7:67-71 Jl'63 (MIRA 16:12)

1. Iz khirurgicheskogo otdeleniya (zav. - kand. med. nauk. A.G. Pugachev, nauchnyy rukovoditel' - prof. S. Ya., Doletskiy) Instituta pediatrii AMN SSSR.

DOLETSKIY, S.Ya., prof.; GAVRYUSHOV, V.V., kand. med. nauk; AKOPYAN, V.G.; LITVINOVA, R.I.

Portohepatography and portotonometry through the umbilical vein in children. Vest. khir. 94 no.2:89-93 F '65. (MIRA 18:5)

1. Iz TSentral'nogo instituta usovershenstvovaniya vrachey.

TER-GRIGOROVA, Ye.N.; GAVRYUSHOVA, L.P.; GROMOVA, R.V. (Moskva)

Congenital hyperplasia of the adrenal cortex (adrenogenital syndrome) with disorders of salt metabolism. Pediatriia no.7: 63-69 '61. (MIRA 14:9)
(ADRENAL CORTEX--DISEASES) (SALT IN THE BODY)

MATVEYEV, M.P.; IGNATOVA, M.S.; GAVRYUSHOVA, L.P.

Schoenlein-Henoch disease (hyperergic vasculitis in children and its compound. Sov. med. 26 no.11:124-127 N'62
(MIRA 17:3)

1. Iz kafedry pediatrii (zav. - deystvitel'nyy chlen AMN SSSR prof. G.N.Speranskiy)TSentral'nogo instituta usovershenstvovaniya vrachey na baze detskoy bol'nitsy imeni F.E. Dzerzhinskogo (glavnyy vrach A.N.Kudryashova).

GAVSHELI, A.V.

Evaluating the industrial significance of various manganese ores of the Chiatura-Sachkhere Basin. Soob. AN Gruz. SSR 18 no.5:593-594 My '57. (MLRA 10:9)

1. Trest "Chiaturmarganets." Predstavleno akademikom R.I. Agladze.
(Chiatura District--Manganese ores)
(Sachkhere District--Manganese ores)

GAVSHIN, A. S.

Eucalyptus

Application of a decoction of Eucalyptus leaves. Veterinariia 29 no. 2, 1952.

9. Monthly List of Russian Accessions, Library of Congress, April 1952. Unclassified.

GAVSHIN, P.; BYCHEK, P.

Putting potentialities into use. Metallurg 8 no.5:33 My '63.
(MIRA 16:7)

1. Azerbaydzhanskiy truboprokatnyy zavod.
(Pipe mills)

GAVSHIN, V.M.

Phosphorite potential of Middle Paleozoic sediments in the Minusinsk intermontane trough. Min. syr'e no.10:61-68 '64.
(MIRA 18:3)

ZAKHARKIN, O.A.; KOLDAYEVA, T.N.; LISOGURSKIY, Z.I.; SKOVORODKIN, P.A.; POLYAK, M.A.; YUR'YEVA, A.K.; Prinimali uchastiye: GAVSHINOV, I.I.; SAVINA, A.S.; ALEKSANDROV, Yu.A.; SEMENOVA, A.N.

Some peculiarities in preparing rubber mixtures in a two-speed rubber mixer. Kauch. i rez. 20 no.10:39-41 O '61. (MIRA 14:12)

1. Yaroslavskiy shinnyy zavod.
(Rubber industry—Equipment and supplies)

POLYAK, M.A.; EPSHTEYN, V.G.; LISOGURSKIY, I.Z.; YUR'YEVA, A.K.; ZAKHARKIN, O.A.; KOLDAYEVA, T.N.; Prinimali uchastiye: SKOVORODKIN, P.A.; GAVSHINOV, I.I.; MINEYEV, A.N.; SUR'YANINOVA, M.N.; BORISOV, N.V.

Studying the process of rubber mixture preparation in 20 r.p.m. rubber mixers. Kauch.i rez. 22 no.4:5-10 Ap '63. (MIRA 16:6)

1. Yaroslavskiy shinnyy zavod i Yaroslavskiy tekhnologicheskiy institut.

(Rubber) (Rubber machinery)

SHITIKOV, V.P.; VINOGRADOV, P.A.; TARUSINA, M.S.; Prinimali uchastiye: GAVSHINOVA, K.B.; ARSEN'IEVA, N.G.; GUDOK, V.V.; OVCHINNIKOV, S.G.; MALKOVA, A.P.

Increasing the heat and wear resistance of engineering asbestos friction materials. Kauch.i rez. 21 no.12:25-26 D '62. (MIRA 16:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut asbesto-tekhnicheskikh izdeliy, Yaroslavskiy zavod sinteticheskogo kauchuka i Yaroslavskiy zavod asbesto-tekhnicheskikh izdeliy.
(Rubber goods) (Asbestos)

83847

S/138/60/000/003/002/007
A051/A029

15.9200 also 2209

AUTHORS: Vinogradov, P.A.; Arsen'yeva, N.G.; Gavshinova, K.Ye.

TITLE: Ternary Copolymers of Butadiene, Acrylonitrile and 2-Methyl-5-Vinyl Pyridine

PERIODICAL: Kauchuk i Rezina, 1960, No. 3, pp. 5 - 9

X

TEXT: The authors have synthesized the ternary copolymers of butadiene with 2-methyl-5-vinyl pyridine and butadiene with acrylonitrile and made a study on the effect of the presence of acrylonitrile rings in the copolymer on the properties of the latter. In Reference 6 it was pointed out that the ternary copolymers in question, containing halide-organic compounds, have a better resistance to the action of aromatic hydrocarbons than the binary copolymers. The experimental procedure followed by the authors is outlined in detail and the results presented in a graph of Figure 1. The obtained results show that the introduction of acrylonitrile rings into the molecular chain of the copolymers of butadiene and methyl-vinyl pyridine has a considerable effect on the properties of the copolymers (see Table 2). The elasticity of the vulcanized rubber is reduced. An obvious drop in the frost resistance is noted. The vitrification

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Ternary Copolymers of Butadiene, Acrylonitrile and 2-Methyl-5-Vinyl Pyridine

temperature of CKHMBП-15A (SKMVP-15A) rubber is -68°C, whereas for CKHMBП-15-15A (SKNMVP-15-15A) rubber it is -41°C. However, the nitrile rings do not effect the physico-mechanical properties of the vulcanized rubber. The properties of the rubber, subjected to the action of organic liquids at a high temperature are discussed. It is seen that the vulcanized rubber of the investigated copolymers in the presence of halide-organic compounds has a high resistance to swelling in organic liquids and a high thermal resistance. These copolymers surpass the butadiene and 2-methyl-5-vinyl pyridine copolymers in their resistance to swelling in organic liquids and their temperature resistance. It was also established that the investigated copolymers have a high thermal resistance in mineral oils. Table 3 gives the data on the similar relationship of the composition effect of the copolymers and that of the chloranil content to the swelling resistance of the vulcanized rubber at room temperature. The swelling is greater when the rubber does not contain chloranil. There are 3 tables, 1 figure and 7 references: 2 Soviet, 4 English and 1 German.

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82722

S/138/60/000/007/002/010
A051/A029

15.9210

AUTHORS: Vinogradov, P.A.; Arsen'yeva, N.G.; Gavshinova, K.Ye.

TITLE: The Interaction of Haloid-Organic Compounds With Butadiene-Nitrile Copolymers

PERIODICAL: Kauchuk i Rezina, 1960, No. 7, pp. 3 - 6

TEXT: The interaction of haloid-organic compounds with butadiene-nitrile copolymers during the vulcanization of rubber mixtures and the properties of the resultant vulcanizates were studied. The experimental procedure is outlined, whereby the conditions adopted were similar to those described in Reference 3. The properties of the polymers and vulcanization were tested according to the ГОСТ-7738-55 (GOST 7738-55) standard on a butadiene-nitrile rubber base. According to experimental data obtained it was found that the vulcanizates of rubber mixtures on a СКН-26 (SKN-26) rubber base in the presence of various haloid derivatives (chloranil, benzotrichloride, benzylchloride, carbon tetrachloride) brings about significant changes in the vulcanizate properties (Table 1). The effect of chloranil on the properties of vulcanizates from various butadiene-nitrile copol-

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The Interaction of Haloid-Organic Compounds With Butadiene-Nitrile Copolymers

ymers is shown in Table 2 and Figure 1. It was found that the tensile strength and specific elongation of butadiene-nitrile rubber vulcanizates not containing haloid-organic compounds drop considerably after swelling in autol-18 or AMG-10 (AMG-10) liquid at a temperature of 200°C. Vulcanizates with polymers containing a small number of nitrile rings, such as CKH-10 (SKN-10) and CKH-18 (SKN-18), show a very noticeable drop of the tensile strength. This is not so apparent in SKN-26 and CKH-40 (SKN-40) rubbers. The introduction of 5 weight parts of chloranil has hardly any effect on the properties of the vulcanizates, but increases the tensile strength of the latter after swelling at 200°C in autol-18 and AMG-10 liquid; it also increases their swelling-resistance in these liquids. Chloranil was found to have a strengthening effect on all vulcanizates. The increase in the tensile strength of vulcanizates from SKN-18 rubber containing 5 weight parts of chloranil after swelling in autol-18 at 200°C was from 80 kg/cm^2 to 150 kg/cm^2; for vulcanizates without chloranil and in AMG-10 liquid it was from 40 kg/cm^2 to 80 kg/cm^2. Figure 2 shows that with an increase in the chloranil content in SKN-18 vulcanizates after heating in autol-18 the thermal stability and swelling-resistance increase. The elasticity and frost- resistance coefficient do not change significantly. SKN-18 rubber, if sufficiently frost-resistant, or

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The Interaction of Haloid-Organic Compounds With Butadiene-Nitrile Copolymers

rubbers containing a lesser number of acrylonitrile rings (e.g., SKN-10) with haloid-organic compounds (e.g., chloranil) introduced into them, can be used in the production of heat- and frost-resistant rubber articles. Figure 3 shows how benzotrichloride changes the properties of SKN-18 rubber vulcanizates. The main properties of vulcanizates from SKN-18 and SKN-10 rubbers and those of butadiene and 2-methyl-5-vinylpyridine copolymers containing 5 weight parts of chloranil were compared and it was seen that SKN-10 rubber vulcanizates are actually equivalent to vulcanizates from butadiene-methylvinylpyridine copolymers and are only inferior to the latter in their stability to the action of dibutyl sebacate at high temperatures. The possibility of introducing haloid-organic compounds into the butadiene-nitrile latex was established. In conclusion the authors state that the butadiene-nitrile copolymer vulcanizates with haloid-organic compounds can be recommended for the production of various gasoline-, oil- and heat-resistant rubbers, asbesto-commercial products or leather substitutes. There are 3 graphs, 2 tables and 7 references: 3 Soviet and 4 English.

Card 3/3

MIRONOVA, N.M.; VINOGRADOV, P.A.; FARBEROV, M.I.; GAVSHINOVA, K.Ye.; ZAKHAROV, N.D.; FEDOROVA, K.F.

Synthesis of butadiene and methyl methacrylate copolymers and the basic properties of sulfurous vulcanizates made on their base. Kauch. i rez. 22 no.10:1-5 O '63. (MIRA 16:11)

1. Yaroslavskiy tekhnologicheskiy institut i Yaroslavskiy zavod sinteticheskogo kauchuka.

L 41757-65 EPF(c)/EPR/EWP(j)/EWT(m)/T Pc-4/Pr-4/Ps-4 RPL RM/WW
ACCESSION NR: AP4043969 S/0138/64/000/008/0005/0009

37
34
B

AUTHOR: Mironova, N. M., Zakharov, N.D., Vinogradov, P.A., Gavshinova, K. Ye., Kucharina, L. G.

TITLE: Nonsulfur vulcanization of unfilled mixes based on butadiene-methyl methacrylate copolymers

SOURCE: Kauchuk i rezina, no. 8, 1964, 5-9

TOPIC TAGS: butadiene copolymer, methyl methacrylate copolymer, barium oxide octahydrate, exposide resin, cumene hydroperoxide, rubber thermal stability, rubber aging, synthetic rubber, nonsulfur vulcanization, copolymer vulcanization, filler, rubber mechanical property, calcium hydroxide/SKMMA-20A rubber, SKMMA-30A rubber

ABSTRACT: The optimum conditions of vulcanization and the properties of unfilled butadiene-methyl methacrylate vulcanizates of varying composition, such as SKMMA-20A, SKMMA-30A, etc. were investigated. The vulcanizing agent used was barium oxide octahydrate (m.p. 78C), since calcium hydroxide was found to be unsatisfactory. The effect of varying amounts of barium hydroxide (5-40% by wt.), epoxide resin E-41 and cumene hydroperoxide, as well as the components of the copolymer, on the mechanical properties

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of vulcanizates from SKMMA-30A (elastic modulus at 100 and 300% elongation, tensile strength, relative elongation, etc.) is plotted and discussed in detail. The best results were obtained with 25-30% by weight of barium oxide octahydrate, which results in rapid prevulcanization. Cumene hydroperoxide (1-8% by wt.) also increased the rate of vulcanization. Polyhydroxyl compounds such as ethylene glycol, starch or epoxide resin, particularly the latter, reduced the vulcanization time 33-50% and improved the distribution of barium hydroxide, but the number of cross linkages in the polymer was decreased. The effect of vulcanization time and of the type of vulcanizing group on the structure of SKMMA-30A vulcanizates is also plotted, as evaluated from the number of polymer cross-linkages. The best results were obtained with 25-30% methyl methacrylate, with a good resistance to aging combined with satisfactory temperature stability, elongation and other properties. Rubber prepared with epoxide resin was found to have a higher stability to thermal aging than sulfur-containing rubber. Its useful properties remained unchanged even after aging for 72 hours at 150C. Vulcanizates containing 25-30% methyl methacrylate have very high thermal stability. Thus, the tensile strength of SKMMA-20A at 100C is 77 kg/cm^2, relative elongation 100%, while for the same rubber after a 72-hour aging at 150C the tensile strength is 116 kg/cm^2, with a relative elongation of 120%. The resistance to thermal aging increases with increasing methyl methacrylate content, but the heat stability decreases. The cause of the increased temperature stability of rubber prepared with

L 41757-65
ACCESSION NR: AP4043969

3

epoxide resin or other polyhydroxyl compounds is apparently the presence of non-ionic bonds which cannot be destroyed by acid. "B. I. Shapiro took part in the experimental work." Orig. art. has: 6 figures.

ASSOCIATION: Yaroslavskiy tekhnologicheskiy institut (Yaroslav Institute of Technology); Yaroslavskiy zavod SK (Yaroslav Synthetic Rubber Factory)

SUBMITTED: 00 ENCL: 00 SUB CODE: MT

NO REF SOV: 004 OTHER: 002

CC

Card 3/3

L 8321-66 EWT(m)/EWP(j)/T/ETC(m) WW/RM

ACCESSION NR: AP5026431 SOURCE CODE: UR/0153/65/008/004/0663/0667

AUTHOR: Mironova, N. M.; Zakharov, N. D.; Vinogradov, P. A.; Gavshinova, K. Ye.

ORG: Departments of Rubber Technology and Chemistry and Technology of OOS and SK, Yaroslavl Technological Institute (Kafedry tekhnologii reziny i khimii i tekhnologii OOS i SK, Yaroslavskiy tekhnologicheskiy institut); Yaroslavl SK Plant (Yaroslavskiy zavod SK)

TITLE: Filled sulfur-free rubbers based on butadiene-methyl methacrylate copolymers

SOURCE: IVUZ. Khimiya i khimicheskaya tekhnologiya, v. 8, no. 4, 1965, 663-667

TOPIC TAGS: rubber, barium compound, vulcanization, methyl methacrylate, butadiene

ABSTRACT: The article deals with the vulcanization of filled mixtures based on the SKMMA-25A butadiene-methyl methacrylate rubber. The physicomechanical properties of vulcanizates prepared with various quantities of barium hydroxide and with various vulcanizing systems were measured. The conditions of preparation of rubber mixtures with the

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UDC: 678.762.2—134.432.028.1

L 8321-66
ACCESSION NR: AP5026431

use of $Ba(OH)_2 \cdot 8H_2O$ as the vulcanizing agent were studied. It was confirmed that the use of sulfur-free vulcanization of butadiene-methyl methacrylate rubber makes it possible to obtain rubbers having a high thermal stability, in contrast to rubbers containing sulfur. However, the mixtures are not sufficiently stable in storage. Orig. art. has: 2 figures and 4 tables.

SUB CODE: 11 / SUBM DATE: 27Apr64 / ORIG REF: 002 / OTH REF: 002

Card 2/2

L 15333-66 EWT(m)/EWP(1) WW/RM

ACC NR: AP6000986 (A) SOURCE CODE: UR/0286/65/000/022/0060/0060

AUTHORS: Mironova, N. M.; Farberov, M. I.; Vinogradov, P. A.; Zakharov, N. D.; Gavshinova, K. Ye.

ORG: none

TITLE: A method for obtaining synthetic rubber. Class 39, No. 176410 [announced by Yaroslavl Technological Institute (Yaroslavskiy tekhnologicheskiy institut)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 22, 1965, 60

TOPIC TAGS: polymer, polymerization, copolymerization, synthetic rubber, rubber

ABSTRACT: This Author Certificate presents a method for obtaining synthetic rubber by low-temperature polymerization of dienes or copolymerization of the latter with vinyl monomers in an aqueous emulsion in the presence of redox initiators. To obtain modified rubbers, the polymerization or copolymerization process is carried out in the presence of β-chlorethyl ester of methacrylic acid.

SUB CODE: 11/ 07/ SUBM DATE: 10Jul63

Card 1/1

UDC: 678.762.2-134.622

RUMANIA/Radio Physics - Statistical Phenomena in Radio Physics. I

Abs Jour : Ref Zhur Fizika, No 9, 1959, 20856

Author : Gavrilov, M.A., Sastova, G.A.
Inst :
Title : Principal Problems of the Theory of Constr ction of Signals and the Theory of Interference Immunity in Remote Control Systems.

Orig Pub : An. Rom.-Sov. mat.-fiz. 1958, 12, No 4, 25-46

Abstract : A translation of this article can be found in the collection "Session of the Academy of Sciences on the Scientific Problems of Automatization of Manufacture, October 1956. Principal Prlblems of Telemechanization of Manufacturing Processes, Moscow, Academy of Sciences, USSR, 1957.
See Referat Zhur Fizika, 1958, No 2, 4040.

Card 1/1

GAVURA, S.P. [Havura, S.P.]

Some geological characteristics of the structure of the Pokutye portion of the Carpathians. Pratsi Inst. geol. kor. kop. AN URSR 2:83-88 '60. (MIRA 14:5)

(Pokutye—Petroleum geology)

GAVURA, S.P.

Genesis of chemogenic sediments in the Carpathian piedmont fault. Geol.sbor. [Lvov] no.7/8:100-104 '61. (MIRA 14:12)

1. Institut geologii poleznykh iskopayemykh AN USSR, L'vov.
(Carpathian Mountain region--Salt deposits)

GAVURIN, M.

"On the k-Linear Operations in Banach Spaces," and "On the Differential and Integral Calculus in Banach Spaces," Dokl. AN SSSR, 22, No.9, 1939

Inst, Mat. & Mech., Leningrad State U.

GAVURIN, M. K.

"Concerning Abstract Potential Series," Dokl. AN SSSR, 29, No.1, 1940

GAVURIN, M. K.

RT-1283 /Work on the computer-analyzer machine for mathematical calculations in Leningrad/ Raboty po primeneniiu schetno-analiticheskikh mashin dlia matematicheskikh vychislenii v Leningrade.
Uspekhi Matematicheskikh Nauk, 3(3): 242, 1948

Gavurin, M. K.

Kantorovič, L. V., and Gavurin, M. K. On some new processes of calculation on a tabulator, connected with the use of binary representations of numbers. Uspehi Matem. Nauk (N.S.) 3, no. 4(26), 160–162 (1948). (Russian)

This paper explains how to convert a number to the base 2 on a punch card tabulator. This is done by successive subtractions of 2^k and discriminations. It is used in connection with a multiplication method of Akušskiĭ [cf. the following review] in which one of the factors is written to the base 2. *D. H. Lehmer* (Berkeley, Calif.).

Source: Mathematical Reviews, Vol 10 No. 2

GAVURIN, M. K.

Gavurin, M. K. On the approximation of a continuous function by a linear differential transform of a polynomial. Izvestiya Akad. Nauk SSSR. Ser. Mat. 12, 15–30 (1948). (Russian)

Write $D=\sum_{i=0}^{k} a_i(x)\frac{d^i}{dx^i}$. (a) $a_i(x)$ continuous, $\sum|a_i(x)|+|a_k(x)|>0$ in $\langle a,b\rangle$. Let E be the set of x in $\langle a,b\rangle$ where $a_0(x)=0$, $E_1=CE\cdot\langle a,b\rangle$. S. N. Bernštein studied the problem under which conditions the "D-polynomials" $DP(x)$ ($P(x)$ a polynomial) are dense in $C\langle a,b\rangle$ [Bull. Acad. Sci. URSS. Sér. Math. [Izvestia Akad. Nauk SSSR] 5, 15–42 (1941); these Rev. 2, 363]. He defined a "regular solution" of (1) $Dy=A(x)$ ($A(x)$ continuous) by the conditions (a) $y, y', \cdots, y^{(k-1)}\in C\langle a,b\rangle$, (b) $y^{(k)}$ is continuous in E_1, (c) (1) is satisfied in $\langle a,b\rangle$, where $a_0(x)y^{(k)}(x)$ is interpreted as 0 for $x\in E$. Bernštein's results were (α) a necessary and sufficient condition for the D-polynomials to be dense in $C\langle a,b\rangle$ is that (1) has a regular solution for every $A(x)\in C\langle a,b\rangle$; (β) if (1) has a regular solution for $A(x)=A_0(x)\in C\langle a,b\rangle$, then $A_0(x)$ can be uniformly approximated by D-polynomials; (γ) if a continuous function $A(x)$ can be uniformly approximated by D-polynomials, then (1) has a regular solution.

In the present paper the author points out that (β) is false and has to be replaced by the theorem: $A_0(x)\in C\langle a,b\rangle$ can be uniformly approximated by D-polynomials, if and only if (i) (1) has at least one regular solution for $A(x)=A_0(x)$; (ii) in every subinterval $\langle\alpha,\beta\rangle$ of $\langle a,b\rangle$ in which $\int_\alpha^\beta|a_0(x)|^{-1}dx<\infty$, $y^{(k-1)}$ is absolutely continuous. After proving the necessity part of the theorem the author gives the following counter-example to (β): let $\langle a,b\rangle=\langle 0,1\rangle$, E Cantor's set, a_0 a continuous function vanishing in E and such that $\int_0^1|a_0(x)|^{-1}dx<\infty$, $D=a_0d/dx+1$, $\theta(x)$ the well-known singular function for which $\theta(0)=0$, $\theta(1)=1$, $\theta'(x)=0$ in E_1. It is easy to see that $y=\theta(x)$ is the only continuous solution of $Dy=\theta(x)$. This solution is regular. But $\theta(x)$ cannot be uniformly approximated by D-polynomials, since otherwise $\theta(x)$ would be absolutely continuous by the necessity part of the theorem. It is also shown that under the hypothesis of (α) the condition (ii) of the theorem must be satisfied, so that (α) remains true.

The proofs are based on a straightforward investigation of the real variable properties of solutions of (1). A typical lemma is: if $\varphi_0, \cdots, \varphi_k, A(x)\in C\langle a,b\rangle$ and are of bounded variation and if y is a regular solution of (1), then $y^{(k-1)}$ is of bounded variation.

W. H. J. Fuchs (Ithaca, N. Y.).

Source: Mathematical Reviews, Vol No.

GAVURIN, M. K.

Gavurin, M. K. On linear differential equations with singularities of the second order. Doklady Akad. Nauk SSSR (N.S.) 62, 5–8 (1948). (Russian)

This paper continues the author's researches [Izvestiya Akad. Nauk SSSR. Ser. Mat. 12, 15–30 (1948); these Rev. 9, 430] on the completeness of "D-polynomials" $Dp(x)$, where D is a linear differential operator and p a polynomial. Now $D=g_0(x)(d/dx)^2+g_1(x)d/dx+g_2(x)$ ($x\in I=[a,b]$; $g_i\in C$; $E_0=E(g_0=0)$ and $E_1=E(g_1=0)$ are null sets). The novelty lies in the fact that $E_0\cap E_1$ need not be empty. A regular solution of (1) $Dy=A(x)$ ($A\in C$) is defined by the conditions (a) $y, y', y''\in C(I-E_0)$; (b) $y, y'\in C(I-(E_0\cap E_1))$; (c) if $g_0(x)y''$ is put equal to 0 in E_0, $g_1(x)y'=0$ in $E_0\cap E_1$, then $g_0(x)y''$, $g_1(x)y'\in C(I)$; (d) (1) holds in I. Let $\Gamma(D)$ be the closure in C of all D-polynomials, $\bar{\Gamma}(D)$ the set of all functions $A(x)$ such that $A=\lim Dp_n(x)$ where each of the three terms of Dp_n converges uniformly to a limit. If $E_0\cap E_1=0$, then $\Gamma(D)=\bar{\Gamma}(D)$. It is stated that this is no longer true in the general case. It is proved that $A(x)\in\bar{\Gamma}(D)$ if and only if (1) has a regular solution y such that (i) y' is absolutely continuous in every interval $[\alpha,\beta]$ with $\int_\alpha^\beta dx|g_0(x)|^{-1}<\infty$, (ii) y is absolutely continuous in every interval $[\alpha,\beta]$ in which $\sup|\int_\alpha^\beta u(x)dx|<\infty$, where $u(x)$ is subject to the conditions $u(x)$ is absolutely continuous, $|u(x)|\geq 1/|g_1(x)|$, $|u'(x)|\geq 1/|g_0(x)|$ almost everywhere. It is stated without proof that there is an example of an operator D such that (1) has a regular solution for every $A(x)\in C$ and yet $\bar{\Gamma}(D)\neq C$. This cannot happen unless $E_0\cap E_1\neq 0$ [see loc. cit.]. In the example $E_0\cap E_1$ consists of three points.

W. H. J. Fuchs (Ithaca, N. Y.).

Source: Mathematical Reviews, Vol 10 No. 5

GAVURIN, M. K.

Gavurin, M. K. On a method of numerical integration of homogeneous linear differential equations convenient for mechanization of the computation. Trudy Mat. Inst. Steklov. 28, 152–156 (1949). (Russian)

The author solves the equation (1) $y''+p(x)y'+q(x)y=0$ by a step-by-step process in which the step from i to $i+1$ is effected by the formulas $y_{i+1}=u_i(x_{i+1})y_i+v_i(x_{i+1})y'_i$, $y'_{i+1}=u_i'(x_{i+1})y_i+v_i'(x_{i+1})y'_i$. The quantities $u_i(x)$ and $v_i(x)$ are solutions of (1) satisfying the conditions $u_i(x_i)=1$, $v_i(x_i)=0$, $u_i'(x_i)=0$, $v_i'(x_i)=1$. They are determined at each stage of the computation by a few terms of Taylor's series.

W. E. Milne (Los Angeles, Calif.).

Source: Mathematical Reviews, Vol 12 No. 7

Gavurin, M.K.

*Faddeeva, V. N., and Gavurin, M. K. Tablicy funkcii Besselya $J_n(x)$ celyh nomerov ot 0 do 120. [Tables of Bessel Functions $J_n(x)$ of Integral Orders 0 to 120]. Mathematical Tables, no. 2. Gosudarstv. Izdat. Tehn.-Teor. Lit., Moscow-Leningrad, 1950. 439 pp.

In this volume are four tables. Table I gives values of $J_n(x)$, for $n=0(1)120$, $x=[0(.1)124.9; 7D]$, δ^2; these fill more than 370 pages of the volume. Apart from the modified second differences, the values through $n=78$, $x=99.99$ are already implied in published volumes of the Harvard tables [Tables of the Bessel Functions of the First Kind . . . , by the Staff of the Computation Laboratory, Annals of the Computation Laboratory of Harvard University, Harvard University Press, vols. 3–8, 1947; 9–11, 1948; 12–13, 1949; these Rev. 8, 406, 605; 9, 208, 307; 10, 150, 483; 11, 135, 463]. Table II gives 5D values less than 125, of zeros of $J_n(x)$. Thus there are 40 zeros for $J_0(x)$, 39 for $J_1(x)$, and so on to the last, a single zero of $J_{118}(x)$. Most of the values are new. Table III is devoted to coefficients in interpolation formulae. Table IV presents values of $J_n(x)$, $n=0(1)13$, $x=[0(.01)14.99; 8D]$; all these values are elsewhere available.

On page 4 the authors state that it was not until after their tables were completed that they saw the first 8 volumes of the Harvard Bessel function tables [loc. cit.]. When its final volume, soon to be published, has actually appeared, it will be found that in the Harvard series no zeros are listed, and values of the functions to at least 10D are given, and $n=0(1)135$, but x is never greater than 100, nor the interval less than unity for $n>85$. Thus these Russian tables contain new results.

R. C. Archibald.

Source: Mathematical Reviews, Vol 1[illegible], No. [illegible].

Gavurin, M.K.

Gavurin, M. K. The use of polynomials of best approximation for improving the convergence of iterative processes. Uspehi Matem. Nauk (N.S.) 5, no. 3(37), 156–160 (1950). (Russian)

Let the nth order matrix A have linear elementary divisors and real latent roots such that

$$|\lambda_1| > |\lambda_2| > |\lambda_3| \geqq |\lambda_4| \geqq \cdots \geqq |\lambda_n|.$$

A method is proposed whereby, if λ_1 and λ_2 have been found approximately, then the estimate for λ_1 can be improved. To begin with, expressions of the form $f_k = \sum_{i=1}^{n} \alpha_i \lambda_i^k$ are derived, e.g., from the iterates of A. First approximations to λ_1 and λ_2 are then f_{p+1}/f_p, $(f_{k+1} - \lambda_1 f_k)/(f_k - \lambda_1 f_{k-1})$. The second approximation to λ_1 is then θ_{p+1}/θ_p, where $\theta_p = \sum_{k=0}^{p} c_k f_k$; here the c_k are chosen so as to maximise the predominance in θ_p of the terms in λ_1, and are essentially the coefficients of the Čebyšev polynomial $T_p(x)$ transformed to the interval $(-|\lambda_2|, |\lambda_2|)$. The error of the resulting estimate is compared with that of Aitken's [Proc. Roy. Soc. Edinburgh. Sect. A. 57, 269–304 (1937)].

The second part is devoted to the approximate solution of $X - AX = Y$, assuming that $|\lambda_i| < 1$, $i = 1, 2, \cdots, n$, so that $X = \sum_{k=0}^{\infty} A^k Y$. The proposed approximation is $Z_p = \sum_{k=0}^{p} c_k A^k Y$, where the c_k are now such that

$$S_p(\lambda) = \sum_{k=0}^{p} c_k \lambda^k$$

is the polynomial of degree p of best approximation to $(1-\lambda)^{-1}$ over the interval $(-|\lambda_1|, |\lambda_1|)$, and is expressible in terms of Čebyšev polynomials. More generally, one may approximate to $(1-\lambda)^{-1}$ over any set of intervals known to include all the λ_i, even if they do not all lie in $(-1, 1)$. It is claimed that the method also applies in Hilbert spaces.

F. V. Atkinson (Ibadan).

Source: Mathematical Reviews, Vol 12, No. 3

GAVURIN, M. K.

Gavurin, M. K. On estimates for the characteristic numbers and vectors of a perturbed operator. Doklady Akad. Nauk SSSR (N.S.) 76, 769–770 (1951). (Russian)

Let A_0 be a bounded linear operator in a Hilbert space, λ_0 one of its characteristic values, and φ_0 a corresponding characteristic vector. Then, under certain restrictions, to each A in a certain neighbourhood of A_0 there is a characteristic value λ and a characteristic vector φ lying respectively in neighbourhoods of λ_0 and φ_0. The author's theorem includes bounds for $|\lambda-\lambda_0|$ and $\|\varphi-\varphi_0\|$ in terms of $\|A-A_0\|$ and $\|R\|$, where R is a generalised inverse of $A_0-\lambda_0$. Other results relate to the location of the rest of the spectrum of A, the analytic expression of φ as a function of λ and A, and corresponding results for the adjoint operators. The bounds for $|\lambda-\lambda_0|$ and $\|\varphi-\varphi_0\|$ are claimed to be incapable of improvement. No proofs are given. *F. V. Atkinson.*

Source: Mathematical Reviews, Vol 12 No. 8

USSR/Mathematics - Differential Equations, Matrical 11 May 52

"Systems of Differential Equations of the [Matrix] Form $y' = Ay^2 - 2By + C$," M. K. Gavurin, Leningrad State U imeni Zhdanov

"Dok Ak Nauk SSSR" Vol 84, No 2, pp 205-208

Gavurin analyzes system of differential eqs of subject form [in matrical representation] and establishes that in some particular cases this system may be integrated in a finite form. Submitted 13 Mar 52 by Acad V. I. Smirnov.

231T65

GAVURIN, M. K.

259T71

USSR/Mathematics - Eigenvectors 1 May 53

"Eigenvalues and Eigenvectors of a Perturbed Operator," M. Z. Solomyak

DAN SSSR, Vol 90, No 1, pp 29-32

Generalization of the results of M. K. Gavurin (DAN SSSR, Vol 76, No 6 (1951), where Gavurin evaluates the eigenvalues and eigenvectors of a perturbed operator in the case where an eigenvalue of the nonperturbed operator is simple (prime)) to the case of multiple eigenvalues. Cites related work of F. Rellich (Math Ann 113, Heft 4 (1936)). Presented by Acad V. I. Smirnov 2 Mar 53.

259T71

USSR/Mathematics

Card : 1/1

Authors : Gavurin, M. K.

Title : Evaluations for natural numbers and vectors of a disturbed operator

Periodical : Dokl. AN SSSR, 96, Ed. 6, 1093 - 1095, June 1954

Abstract : Evaluations are given for the deviation of a natural number λ and natural vector φ of a disturbed operator $A = A_0 + B$ from corresponding natural number λ_0 and natural vector φ_0 of an intial operator A_0. The disturbance B was assumed to be limited. The evaluation required that φ_0 should coincide with the natural vector ψ_0 of the operator A_0 at a natural number λ_0. Mathematical formulas for such evaluations are included. Four references.

Institute : The A. A. Zhdanov State University, Leningrad

Presented by : Academician V. I. Smirnov, April 10, 1954

USSR/ Mathematics

Card : 1/1

Authors : Gavurin, M. K.

Title : On the degree of accuracy of methods of approximation, applied to finding the characteristic numbers of integral operators.

Periodical : Dokl. AN SSSR, 97, Ed. 1, 13 - 15, July 1954

Abstract : Upon examination of a linear integral operator A in space, the author dwells on the methods used for determining the proper (characteristic) numbers of the operator. When using the method of approximation, the operator A is substituted by a degenerated operator A_0 for which the proper numbers are easily found by means of simple algebraic equations. In this connection, a method of evaluating the degree of error, made in the above-mentioned substitution, is proposed. The evaluation is based on a theorem by the same author, published in Dokl. AN SSSR, Vol. 96, Ed. 6 (1954).

Institution : The A. A. Zhdanov Leningrad State University

Presented by : Academician, V. I. Smirnov, April 1954

SUBJECT USSR/MATHEMATICS/Functional analysis CARD 1/1 PG - 804
AUTHOR GAVURIN M.K.
TITLE Approximative determination of the eigennumbers and the theory of perturbation.
PERIODICAL Uspechi mat.Nauk 12, 1, 173-175 (1957)
reviewed 6/1957

As it is well-known, to the approximative determination of the eigennumbers and eigenvectors of an operater A there can be used an operater A_0 being near to A in a certain sense, the spectrum of which is known more or less. In a similar manner the asymptotic of the eigennumbers of a disturbed operater can be obtained from the asymptotic of the original one. In the present paper some well-known facts of the functional analysis, estimations etc. are used in order to facilitate these comparing methods in the single cases.

SOV/140-58-5-1/14

AUTHOR: Gavurin, M.K.

TITLE: Scientific Meeting at the Mathematical-Mechanical Eng. Dept. of Leningrad University (Nauchnaya sessiya na matematiko-mekhanicheskom fakul'tete Leningradskogo universiteta)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1958, Nr 5, pp 3-4 (USSR)

ABSTRACT: This is a short report on the Meeting of the Mathematical-Mechanical Eng. Dept. of Leningrad University which took place from November 25 - December 6, 1957.
Subject: Computer mathematics (in the wide sense of the word). The meeting was organized by the Scientific Research Institute for Mathematics and Mechanics of the Leningrad University (Head master Professor S.V.Vallander) and by the Chair of Computer Mathematics (Professor L.V.Kantorovich). There were participators from Leningrad, Moscow, Tartu. 16 lectures were given.
This issue, Nr 5 (1958) of this periodical contains 11 contributions which are entirely or partially identical with the lectures mentioned above. The contributions of A.D.Aleksandrov and I.K.Daugavet in this issue do not belong to the meeting.

Card 1/1

AUTHOR: Gavurin, M.K. (Leningrad) SOV/140-58-5-3/14

TITLE: Non-Linear Functional Equations and Continuous Analogues of the Iteration Methods (Nelineynyye funktsional'nyye uravneniya i nepreryvnyye analogi iterativnykh metodov).

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1958, Nr 5, pp 18-31 (USSR)

ABSTRACT: The author considers different methods with the aid of which it is possible to obtain the solution of a functional equation by solving the Cauchy problem for a certain abstract differential equation. Some existence theorems are simultaneously obtained. Further existence theorems are proved under weakened assumptions, but not constructively. Also a statement on the uniqueness of the solution is given. The results are only partially new and are in relation with different papers, e.g. Ostrowski [Ref 9], Mysovskikh [Ref 4], etc.
There are 9 references, 5 of which are Soviet, 3 American, and 1 Hungarian.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet imeni A.A.Zhdanova (Leningrad State University imeni A.A.Zhdanov)

Card 1/8

43-7-5/18

AUTHOR: GAVURIN, M.K.

TITLE: On the Principal Theorems of the Differential and Integral Calculus in Linear Spaces (Ob osnovnykh teoremakh differentsial'nogo i integral'nogo ischisleniya v lineynykh prostranstvakh)

PERIODICAL: Vestnik Leningradskogo Universiteta, Seriya Matematiki, Mekhaniki i Astronomii, 1958, Nr 7 (2), pp 38-48 (USSR)

ABSTRACT: The use of the derivative in the sense of Frechet automatically excludes the consideration of unbounded functions. At the other hand in the linear and still more in the nonlinear functional analysis the unbounded operators are very essential. Therefore the author tries to formulate the principal theorems of analysis under more general assumptions. Without diminishing essentially the extent of the assertions he renounces from the Banach space and he considers functions of a linear set without topology in the multinormed space. The author's construction is similar to the ideas of Sebastião e Silva [Ref.3] . The proofs repeat with little changes the proofs of the author [Ref.1] for the corresponding theorems in the Banach spaces.
1 Soviet and 2 foreign references are quoted.

SUBMITTED: 30 December 1957
AVAILABLE: Library of Congress

Card 1/1 1. Differential calculus-Theory 2. Integral calculus-Theory

GAVURIN, M.K.

16(0) PHASE I BOOK EXPLOITATION SOV/3177

Matematika v SSSR za sorok let, 1917-1957.tom 1: Obzornyye stat'i (Mathematics in the USSR for Forty Years, 1917-1957) Vol 1: Review Articles) Moscow, Fizmatgiz, 1959. 1002 p. 5,500 copies printed.

Eds: A. G. Kurosh, (Chief Ed.), V. I. Bityutskov, V. G. Boltyanskiy, Ye. B. Dynkin, O. Yu. Shilova, and A. P. Yushkevich; Ed. (Inside book): A. P. Lapko; Tech. Ed.: L. N. Akhlamov.

PURPOSE: This book is intended for mathematicians and historians of mathematics interested in Soviet contributions to the field.

COVERAGE: This book is Volume I of a major 2-volume work on the history of Soviet mathematics. Volume I surveys the chief contributions made by Soviet mathematicians during the period 1917-1957; Volume II will contain a bibliography of major works since 1917 and biographic sketches of some of the leading mathematicians. This work follows the tradition set by two earlier works: Matematika v SSSR za pyatnadtsat' let (Mathematics in the USSR for 15 Years) and Matematika v SSSR za tridtsat' let (Mathematics in the USSR for 30 Years). The book is divided into the major divisions of the field, i.e., algebra, topology, theory of probabilities, functional analysis, etc., and contributions and outstanding problems in each discussed. A listing of some 1100 Soviet mathematicians is included with references to their contributions in the field.

Gikhman, I. I., and B. V. Gnedenko. Mathematical Statistics 797

Gavurin, M. K., and L. V. Kantorovich. Approximation and Numerical Methods 809

Introduction 809

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S/042/60/015/005/008/016XX
C111/C222

16.4600

AUTHOR: Gavurin, M.K.

TITLE: Solution to "Almost Singular" Operator Equations

PERIODICAL: Uspekhi matematicheskikh nauk, 1960, Vol.15, No.5, pp.151-154

TEXT: The author considers the solution of the equation

(2.1) $Ax = y$,

where A is linear, selfadjoint and has a simple eigennumber μ in the neighborhood of zero, while the other spectrum of A lies in the distance $d \gg |\mu|$ from zero. Let 0 be the zero approximation of μ and let it be possible to determine the corresponding approximate eigenvector φ_0 ($\|\varphi_0\|=1$) so that from $\mu_0 = (A\varphi_0,\varphi_0)$ it follows $|\mu_0| \ll d$. Then the vector $\sigma = A\varphi_0 - \mu_0\varphi_0$ is introduced; it is $(\sigma,\varphi_0) = 0$. Then the selfadjoint operator A_0 is defined as follows: Let the domain of definition D_{A_0} of A_0 be identical with D_A of A; for $u \in D_{A_0}$ let $A_0u = Au-(u,\varphi_0)\sigma-(u,\sigma)\varphi_0$. Then $A_0\varphi_0 = A\varphi_0-\sigma = \mu_0\varphi_0$. Beside of μ_0, A_0 has no eigennumbers near to zero.

Card 1/3

Solution to "Almost Singular" Operator Equations

Let H_0 be the orthogonal complement of the element φ_0 in H. The operator A_0 considered only on $H_0 \cap D_{A_0}$ is denoted as $[A_0]$. Let now

$$x = a\varphi_0 + z \qquad (z, \varphi_0) = 0$$
$$y = b\varphi_0 + v \qquad (v, \varphi_0) = 0 \,. \tag{2.6}$$

For the determination of a and z one substitutes (2.6) into (2.1). The result decomposes (under consideration that $A_0 z = [A_0] z$) into two equations

$$a\sigma + [A_0] z = v, \tag{2.7}$$

$$a\mu_0 + (z, \sigma) = b. \tag{2.8}$$

From (2.7) it follows

$$z = [A_0]^{-1} v - a[A_0]^{-1}\sigma \tag{2.9}$$

Solution to "Almost Singular" Operator Equations

and then from (2.8)

$$(2.10) \qquad a = \frac{b-([A_0]^{-1}v, \varphi)}{\varphi_0-([A_0]^{-1}\varphi, \varphi)},$$

so that x is representable in the form $x = [A_0]^{-1}v+a\{\varphi_0-[A_0]^{-1}\varphi\}$, where only in the determination of the scalar a there may appear an essential loss of exactness.

The results can be used for the application of the iteration method of T.Kikuta (Ref.1).

There is 1 non-Soviet reference.

SUBMITTED: April 16, 1957

Card 3/3

GAVURIN, M.K.

Solution of "almost-singular" operator equations. Usp.mat.nauk 15 no.5:151-154 S-O '60. (MIRA 13:10)
(Operators (Mathematics))

30733
S/208/61/001/005/001/007
A060/A126

16.4600 16.6500

AUTHOR: Gavurin, M. K. (Leningrad)

TITLE: On the method of false perturbations for finding eigenvalues

PERIODICAL: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v.1, no. 5, 1961, 757 - 770

TEXT: The term "method of false perturbations" has been introduced by the author in the following connection: A selfconjugate operator A in Hilbert space H and a normed vector φ_0 are given, considered to be an approximation to the eigenvector A. We take the number $\lambda_0 = (A\varphi_0, \varphi_0)$ as the approximation to the corresponding eigenvalue and form

$$\sigma = A\varphi_0 - \lambda_0\varphi_0. \quad (1)$$

We introduce the selfconjugate operator B, defined by the equation

$$Bx = (x, \varphi_0)\sigma + (x, \sigma)\varphi_0, \quad (2)$$

and the operator $A_0 = A - B$. Then $A_0\varphi_0 = \lambda_0\varphi_0$, i.e. for A_0 the number λ_0 and the vector φ_0 are characteristic. Thus, A may be considered as obtained by the per-

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turbation B from the operator A_0, for which the eigenvalue and the eigenvector are known. The present paper investigates an iteration method for finding the eigenvalues based on the above considerations. Besides the problem $A\varphi = \lambda\varphi$, also the more general problem $A\varphi = \lambda C\varphi$ is considered. The author then summarizes some necessary results from the theory of perturbations, he develops the method of false perturbations for finding eigenvalues, proves that the method of false perturbations in the simplest case (n = 1) coincides with the Crandall-Kikut method, and applies the method of false perturbations to the more general problem of finding the eigenvalues for the problem $A\varphi = \lambda C\varphi$. It is proved that if inequalities

$$\|\sigma_0\| < \frac{1}{3} r \qquad (7)$$

and

$$|\lambda_0 - \Lambda| < r - \|\sigma_0\| \qquad (8)$$

are satisfied and m is a positive integer, then the iteration process converges and the following estimates hold:

$$|\lambda_n - \Lambda| < \frac{r}{3} q^{2(2m+1)^n}.$$

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A060/A126

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$$\|y_n - y\| \leq \frac{1}{1-q^{2(2m+1)^n}} q^{(2m+1)^n},$$

where

$$q = \frac{3}{r} \|x_0\| < 1.$$

There are 6 references: 4 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: S. H. Crandall, Iterative procedures related to relaxation methods for eigenvalue problems, Proc, Roy. Soc., 1951, A207, no. 1090, 416 - 424; T. Kikuta. Convergence of iterative methods. Progr. Theoret. Phys., 1953, 10, no. 6, 653 - 672.

SUBMITTED: January 17, 1961

Card 3/3

GAVURIN, M.K.

Set of solutions to a linear differential equation. Dokl. AN SSSR 137 no.2:261-264 Mr '61. (MIRA 14:2)

1. Leningradskiy gosudarstvennyy universitet. Predstavleno akademikom V.I.Smirnovym.

(Differential equations)

S/208/62/002/003/001/011
I040/I219

AUTOHR: Gavurin, M. K. (Leningrad)

TITLE: On ill-conditioned systems of linear algebraic equations

PERIODICAL: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 2, no. 3, 1962, 387-397

TEXT: Given

$$Ax = y \tag{1}$$

where x, y are vectors and A some ill-conditioned matrix derived form a self-adjoint operator, the problem is to find approximate solutions of (1), that is to find vectors x_0 such that

$$Ax_0 \approx y \tag{2}$$

The method consists of finding a representation of the solution as a sum of two orthogonal components $x^{(1)}$ and $x^{(2)}$, the first being very sensitive to propagated and round-off errors. $x^{(1)}$ corresponds to the invariant subspace $H^{(1)}$ defined by m orthogonal vectors $y_1, \ldots, y_m$ which are nearly annihilated by the matrix obtained from A after $n-m$ step in the Gauss method. $x^{(2)}$ corresponds to the orthogonal complement $H^{(2)}$ of $H^{(1)}$. The formulas giving $x^{(1)}$ and $x^{(2)}$ are obtained with the aid of an operator B, such that

$$A_0 = A - B \tag{3}$$

Card 1/2

GAVURIN, M.K.; RUBINSHTEYN, G.Sh.; SURIN, S.S.

Optimum use of operation funds in the execution of several types of work (generalized transportation problem). Sib. mat. zhur. 3 no.4: 481-499 Jl-Ag '62. (MIRA 15:7)
(Linear programming)

AKILOV, G.P.; VULIKH, B.Z.; GAVURIN, M.K.; ZALGALLER, V.A.; NATANSON, I.P.; PINSKER, A.G.; FADDEYEV, D.K.

Leonid Vital'evich Kantorovich; on his 50th birthday. Usp. mat.nauk 17 no.4:201-215 '62. (MIRA 15:8)
(Kantorovich, Leonid Vital'evich, 1912-)

GAVURIN, M.K.

Numerical integration of ordinary differential equations.
Metod. vych. no.1:45-51 '63. (MIRA 16:8)

(Differential equations)

GAVURIN, M.K.

Existence theorems for nonlinear functional equations.
Metod. vych. no.2:24-28 '63.

(MIRA 16:11)

GAVURIN, M.K.

Approximation of a function with a stochastic argument. Vest. LGU 18 no.13:30-60 '63. (MIRA 16:9)
(Functions of real variables)

GAVURIN, M.K.

A priori estimate of the hereditary error in problems of linear and nonlinear programming. Optim. plan. no.2:62-68 '64.
(MIRA 18:6)

VULIKH, B.Z.; GAVURIN, M.K.; LOZINSKIY, S.M.

Isidor Pavlovich Natanson, 1906-1964; obituary. Usp. mat. nauk 20 no.1:171-175 Ja-F '65. (MIRA 18:4)

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S/199/62/003/004/001/002
B112/B104

AUTHORS: Gavurin, M. K., Rubinshteyn, G. Sh., and Surin, S. S.

TITLE: Optimum use of production means employing several modes of operation (generalized transportation problem)

PERIODICAL: Sibirskiy matematicheskiy zhurnal, v. 3, no. 4, 1962, 481-499

TEXT: The case of m different production means and n modes of operation is considered. The productivity a_{ij} and the operating costs b_{ij} of the i-th production means for the j-th mode of operation are assumed to be known. The following fundamental problem of production planning is studied: the matrices

$$A = (a_{ij})_{\substack{i=1,\ldots,m \\ j=1,\ldots,n}}, \quad B = (b_{ij})_{\substack{i=1,\ldots,m \\ j=1,\ldots,n}}$$

and the numbers $k_1, k_2, \ldots, k_n$ are given where $a_{ij} \geq 0$, $b_{ij} > 0$, $k_j > 0$ $(i = 1,\ldots,m;\ j = 1,\ldots,n)$. A matrix (planning)

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$$x = (x_{ij})_{\substack{i=1,\dots,m \\ j=1,\dots,n}},$$

is sought which fulfils the conditions

(1) $x_{ij} \geqslant 0$ $(i = 1,\dots,m;\ j = 1,\dots,n)$;

(2) $\sum_{j=1}^{n} x_{ij} \leqslant 1$ $(i = 1,\dots,m)$;

(3) $\sum_{i=1}^{m} a_{ij}\, x_{ij} = k_j$ $(j = 1,\dots,n)$;

(4) $\mu(x) = \sum_{i=1}^{m} \sum_{j=1}^{n} b_{ij}\, x_{ij} \min$

In order that the planning x may be optimal (i.e. so that condition 4 is fulfilled) the existence of a system of numbers $y_1, y_2, \dots, y_m, y_{-1}, y_{-2}, \dots, y_{-n}$, which satisfy the conditions

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(α) $y_i > 0$ $(i = 1,\ldots,m)$;

(β) $a_{ij}y_{-j} \leq y_i + b_{ij}$ $(i = 1,\ldots,m;\ j = 1,\ldots,n)$;

(γ) $a_{ij}y_{-j} = y_i + b_{ij}$, for $x_{ij} > 0$ $(i = 1,\ldots,m;\ j = 1,\ldots,n)$;

(δ) $y_i = 0$ for $x_{io} = 1 - \sum_{j=1}^{n} x_{ij} > 0$ $(i = 1,\ldots,m)$

is necessary and sufficient. A system of numbers y, which satisfies the conditions (γ) and (δ) is called a system of potentials for the planning x. The following method of potentials was used to solve the planning problem: An initial planning x which fulfills what are called the reliability conditions (1), (2), (3), is determined by certain recurrent relations between the potentials y. If, in addition, this planning satisfies the conditions (α) and (β), it is optimal and the solution process is terminated; otherwise, a new admissible planning $x' = (x'_{ij})_{\substack{i=1,\ldots,m \\ j=1,\ldots,n}}$

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Optimum use of production ...

with the property $\mu(x') < \mu(x)$ is constructed the potentials of which are again clearly determined.

SUBMITTED: July 29, 1961

Card 4/4

Formylation of polyvinyl alcohol and the [redacted] *f*, [redacted] *K*, **for polyvinyl formate.** S. Usbaber, [redacted], and V. [redacted] ([redacted] Inst.). *Bull. acad. sci. U.R.S.S., Classe sci. chim.* 1947, 71-80(in Russian).—Polyvinyl alc. (I), obtained by hydrolysis of polyvinyl acetate in 20% soln. in EtOH, with H_2SO_4 (10% of the wt. of the soln.) at 60-65°, 16 hrs., and dried at 45°, was formylated with 100% HCO_2H, in the wt. ratio I:HCO_2H = 1:5; after diln. of the mass with Me_2CO to 5%, the product was pptd. in H_2O or EtOH and dried at 45°. By starting with I of acid no. 8.2 mg. KOH/g., acetate group content 1.3%, intrinsic viscosity η/c 0.0705, runs with various catalysts gave products with the following degrees of formylation *f* (in mole %): H_2SO_4, 8% of the wt. of the reaction mass, 100 hrs., 15°, *f* = 16.9%; $ZnCl_2$ 30, 120 hrs., 15°, 24.3; $ZnCl_2$ 30, 30 hrs., 40-50°, 61.3; H_2SO_4 8, 30 hrs., 40-50°, 21.6; $ZnCl_2$ 40, 30 hrs., 60°, 9.0; without catalyst, 30 hrs., 60°, 84.6%. Thus, presence of H_2SO_4 or of $ZnCl_2$ lowers *f* considerably; also, the products obtained with H_2SO_4 or $ZnCl_2$ at 40-60° are insol. in Me_2CO and in alkali even on boiling. Without catalyst, more prolonged formylation did not improve *f*, an equil. being evidently reached in 30 hrs. at 60°. A higher *f* was, however, attained through repeated formylations with fresh portions of HCO_2H; thus, after 4 consecutive formylations, *f* = 94.13 mole %. In a single operation, *f* increases with time only in the initial stages and then becomes practically const.; e.g., at 60°, in 3, 10, 20, 30, and 50 hrs., *f* = 75.4, 81.5, 83.9, 84.6, and 84.3. In order to det. the degree of destruction of the polymer possibly brought about by the formylation, the product with *f* 97.67 mole % was subjected to hydrolysis by 10 hrs.' boiling with a 6-fold excess of H_2O and with addn. of 5% HCO_2H; judging by η/c of the polyvinyl alc. thus recovered, 0.0605 as against the original 0.0705, formylation at 60° does entail marked destruction of the polymer mol. With decreasing temp., *f* decreases somewhat; thus, in 30 hrs., at 60, 40, 30, and 15°, *f* = 84.3, 69.0, 66.9, and 64.6. At 15°, in 6, 22, 34, 48, and 72 hrs., *f* = 48.0, 56.7, 57.9, 62.7, and 68.1. Five consecutive 30-hr. formylations with fresh HCO_2H gave *f* = 64.6, 82.0, 90.5, 98.0, and 93.7; the final product had η/c 0.055; i.e., the degree of destruction is less than at a higher temp. At 10°, four formylations gave *f* 93.9. Attempts to improve *f* still further by pptg. the product with abs. MeOH or EtOH instead of H_2O or aq. alc. and thus eliminate possible hydrolysis were unavailing and resulted rather in lower *f*, e.g., at 15°, 24 hrs., *f* = 80; evidently, the low *f* is caused by alcoholysis of the product. The degree of destruction of the polymer, under these conditions, was very slight or insignificant, η/c of the final product differing very little from that of the initial I. From measurements of η/c (in 0.25 and 0.5% solns. in Me_2CO at 20°) of the highest formylated product (*f* =

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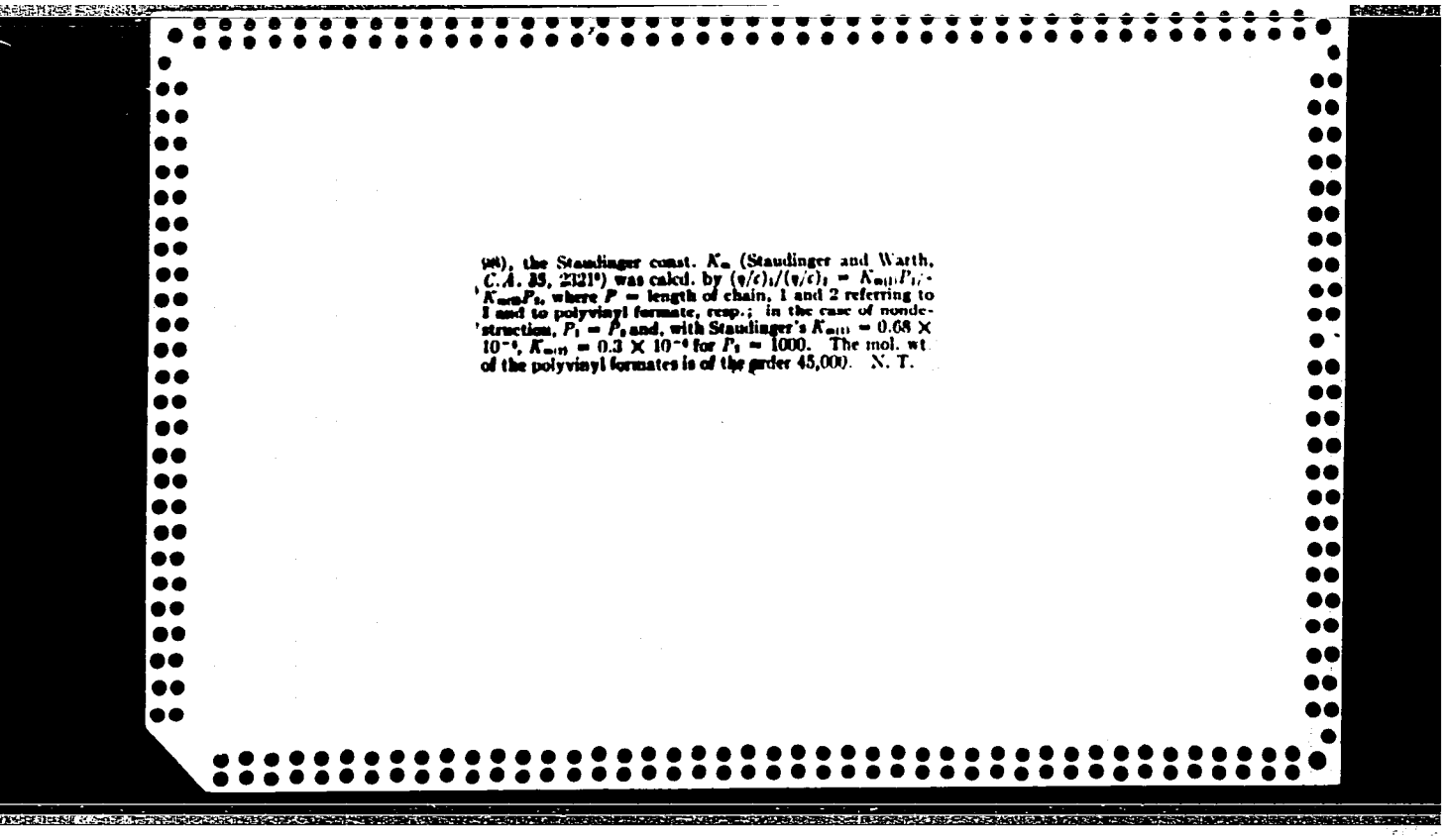

η_{sp}), the Staudinger const. K_m (Staudinger and Warth, *C.A.* **35**, 2321[9]) was calcd. by $(\eta/c)_1/(\eta/c)_2 = K_m P_1/K_m P_2$, where P = length of chain, 1 and 2 referring to I and to polyvinyl formate, resp.; in the case of nondestruction, $P_1 = P_2$ and, with Staudinger's $K_m = 0.68 \times 10^{-4}$, $K_m = 0.3 \times 10^{-4}$ for $P_1 = 1000$. The mol. wt of the polyvinyl formates is of the order 45,000. N. T.

GAVURINA, R. K.

Ushakov, S. N., Gavurina, R. K. and Medvedena, P. A., Esterfication of polyvinyl-alcohol by dibasic aliphatic acids. P. 1118.

At interaction of polyvinyl alcohol with chloroanhydride and anhydride polymer of adipic acid pyridine, there were obtained esters with various degrees of esterfication, which is determined by the ratio of the initial components.

Chair of Technology of Plastic Masses
Leningrad Technological Institute.
April 1, 1948.

SO: Journal of Applied Chemistry (USSR) 21, No. 11 (1948)

GAVURINA, R. K.

Ushakov, S. N., Gavurina, R. K. and Riadinskaia, N. M., On the homogeneity of the composition of polyvinylbutyrales obtained by methods of the homogeneous and heterogeneous acetalation. P. 1126.

The degree of physical and chemical homogeneity of polyvinylbutyrales, obtained by the homogenous and the heterogenous methods of synthesis is approximately the same.

Chair of Technology of Plastic Masses
Leningrad Technological Institute
April 1, 1948.

SO: Journal of Applied Chemistry (USSR) 21, No. 11 (1948).

GAVURINA, R. K.

Ushakov, S. N., Gavurina, R. K. and Tsubina, Kh. V. "On the dehydration of polyvinyl alcohol," In the symposium: Investigations in the field of complex-molecular compounds, Moscow-Leningrad, 1949, p. 182-92, - Bibliog: 5 items

SO: U-5241, 17 December 1953, (Letopis 'Zhurnal 'nykh Statey, No. 26, 1949)

GAVURINA, R.K.

AID P - 1581

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 11/21

Author : Gavurina, R. K.

Title : Methods for determining the content of functional groups in high polymers

Periodical : Zhur. prikl. khim., 28, no.1, 81-86, 1955

Abstract : Four methods for calculation of the content of functional groups in high polymers are given. Compounds with 4 functional groups are used for the calculations.

Institution: None

Submitted : Ja 16, 1953

SOV/120-58-8-3/36

AUTHORS: Gavurina, R.K. (Candidate of Technical Science), Medvedeva, P.A., Yanovskaya, Sh.G., Shklyar, B.N., Dobrer, Ye.K. and Barzilovich, V.M. (Engineers)

TITLE: Cast Insulation based on Cold-hardening Unsaturated Polyester Resins (Litaya izolyatsiya na osnove nenasyshchennykh poliefirnykh smol kholodnogo otverzhdeniya)

PERIODICAL: Vestnik Elektropromyshlennosti, 1958, Nr 8, pp 6-10 (USSR)

ABSTRACT: This article describes work on cast insulation made of unsaturated polyester resins. The manufacture of the resins is briefly described. Reference is made to foreign work on the application of these resins. Soviet resins type KGMS were described in Vestnik Elektropromyshlennosti, 1956, Nr 2. The authors developed and tested casting compounds based on cold-hardening unsaturated polyester resins, and containing quartz dust as a filler. The main technical characteristics of compounds grades AF and F, which were found most suitable for cast insulation, are given in Table 1. Compound AF has the higher strength but the lower resistance to water. The electrical characteristics of the compounds determined on sheets 2 - 4 mm thick

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Cast-insulation based on Cold-hardening Unsaturated Polyester Resins

are displayed in Table 2. Both materials are of high electric strength, but a high dielectric loss at 80°C limits their field of application. Similar sheets were used in determining the influence of moisture on the electrical properties, and the change in power-factor on exposure to humid atmosphere is shown in Fig 1. The casting properties and general behaviour of the compound were tested by incorporating it in current-transformers of type TCh-2, for 2 kV, and TVLD-10, for 10 kV, as illustrated in Figs 2 and 3 respectively. The first of these was developed by Engineers V.M. Barzilovich and S.I. Tamarchina and the second by Engineer N.I. Bachurin. The casting procedure was the same for both resins, using open moulds. A graph of the temperature in the thickness of the insulation of current-transformer type TVLD-10 (insulation weight 5 kg) during the process of hardening of the compound is shown in Fig 4. Even in the thickest layers of insulation the temperature-rise did not exceed 10 - 12°; thermal and shrinkage stresses are therefore negligible. Test results on current-transformers insulated

Cast-insulation based on Cold-hardening Unsaturated Polyester Resins

[illegible] and AF are given in Fig 3. After prolonged exposure to high humidity, the insulation resistance of current-transformer type TVLD-10 is reduced but still remains fairly high. Current-transformer type TCh2 was tested for resistance to frost at -50°C, and also for resistance to shock and vibration. The results were satisfactory. Curves of insulation power-factor as functions of voltage and temperature measured on current transformers type TVLD-10 are given in Figs 5 and 6. The results obtained show that the electrical properties of polyester insulation are satisfactory for indoor electrical equipment for voltages of 0.5 - 3 kV.

There are 3 tables, 6 figures, and 9 references, 4 of which are Soviet, 4 English and 1 German.

SUBMITTED: March 10, 1958

1. Electric insulation--Processing 2. Electric insulation--Materials
3. Resins--Applications

Card 3/3

GAVURINA, P. K.

15

Distr: 4E4j/4E2c(j)

Cast unsaturated polyester resins hardened in the cold. P. K. Gavurina, P. G. Mel'nikova, and Sh. G. Yankovskaya. *Zhur. Prikład. Khim.* 31, 110-24(1958).—Polyethylene glycol maleic esters of naphthenic, adipic, sebacic, and other acids were polymerized at 100–200° in a current of N or CO_2 and copolymerized with styrene with different inhibitors, initiators, and accelerators. The process of hardening was followed by the exothermic temp. vs. time curve. The heat stability and the jelly factor (Me_2CO extn.) were det'd.
I. Bencowitz

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GAVURINA, R.K.; MITROFANOVA, A.V.; DMITRIYEVA, N.S.

Use of dienyls as accelerators of the "hardening" of process of unsaturated polyether resins. Zhur. prikl. khim. 31 no.8:1227-1234 Ag '58. (MIRA 11:12)

(Gums and resins)

5(3) SOV/80-32-4-27/47

AUTHORS: Gavurina, R.K., Medvedeva, P.A., Yanovskaya, Sh.G. and Granova, Z.A.

TITLE: The Polymerization of Styrene in the Presence of 1-Oxy-1'-hydroperoxide-dicyclohexylperoxide and Cobalt Naphthenate (Polimerizatsiya stirola v prisutstvii 1-oksi-1'-gidroperekisiditsiklogeksilperekisi i naftenata kobal'ta)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 4, pp 857-863 (USSR)

ABSTRACT: The polymerization of styrene was studied by a number of investigators, in particular by Dolgoplosk and Tinyakov [Refs 7, 8]. The study of this process in the presence of the agents cited in the title presents a special interest because of its wide application in the technology of copolymerization of unsaturated polyester resins. The investigation of the kinetics of styrene polymerization was conducted by the authors by means of the dilatometric method and by polymerization in ampoules, in case of high conversion. Nitrogen, purified from oxygen, served as a medium. Three series of experiments at temperatures of 25; 38.4 and 56.4°C were carried out while applying the method of polymerization in dilatometers. Kinetic curves obtained in these experiments are shown in Figures 1 - 3. The study of kinetic curves at higher conversions was carried out

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The Polymerization of Styrene in the Presence of 1-Oxy-1'-hydroperoxide-dicyclohexylperoxide and Cobalt Naphthenate

at a temperature of 38.4°C. Conclusions drawn from these experiments are as follows: 1. The system consisting of 1-oxy-1'-hydroperoxide-dicyclohexylperoxide and cobalt naphthenate manifests its activity in styrene polymerization at low temperatures, 25 to 56°C; 2. The introduction of cobalt naphthenate leads to an increase in the initial polymerization rate, R_0. With increasing cobalt concentration, $[Co]$, R_0 also increases. The functional relationship between R_0 and $[Co]^{\frac{1}{2}}$ is linear. With polymerization progressing, its rate is noticeably reduced, which is more pronounced at the higher concentration of cobalt naphthenate; 3. The characteristic viscosity of solutions of the polymers obtained, η, decreases in the region of low conversions but sharply increases in the region of high conversions, when cobalt naphthenate is added. With increasing concen-

The Polymerization of Styrene in the Presence of 1-Oxy-1'-hydroperoxide-dicyclohexylperoxide and Cobalt Naphthenate

tration of cobalt naphthenate, η also rises.
There are 7 graphs, 3 tables and 14 references, 2 of which are Soviet, 3 German, 8 English and 1 Japanese.

SUBMITTED: January 31, 1958

Card 3/3

5(3) SOV/80-32-5-28/52

AUTHORS: Gavurina, R.K., Medvedeva, P.A., Yanovskaya, Sh.G., Visleneva, L.O.

TITLE: The Polymerization of Styrene in the Presence of 1,1'-Bishydroperoxidedicyclohexylperoxide and Cobalt Naphthenate

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 5, pp 1086-1091 (USSR)

ABSTRACT: The work is a continuation of [Ref 1]. The polymerization was measured by the dilatometric method and in ampoules. The concentration of 1,1'-bishydroperoxidedicyclohexylperoxide (HPC-1,1') was kept constant at 0.8 mole/l, the quantity of cobalt naphthenate (CN) varied from $0.058 \cdot 10^{-3}$ to $5.8 \cdot 10^{-3}$ mole Co/l. The experiments were made at 25, 38.4 and 56.4°C. The introduction led to a noticeable increase in the initial rate of polymerization R_o. Figure 4 shows R_o as a function of the square root of the cobalt concentration. At the increase of conversion the polymerization rate decreases. The minimum duration of the process is observed at the highest concentration of CN. In the polymerization in ampoules a high polymerization rate is observed even at a conversion of 90-85 weight %, in some cases at 100%. At high degrees of polymerization the addition of CN leads to a considerable increase of the viscosity [η]. Comparison of

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The Polymerization of Styrene in the Presence of 1,1'-Bishydroperoxidedicyclohexyl-peroxide and Cobalt Naphthenate

1-oxy-1'-hydroperoxidedicyclohexylperoxide (HPC-1) and HPC-1,1' shows that the rate of the process decreases more rapidly with the first substance at increasing conversion. A conversion of 19 weight % is obtained with HPC-1 after 29 hours, with HPC-1,1' after 4 hours. For all temperatures R_o is higher for HPC-1,1', if no CN is added. The addition of CN shows clearer results, however, with HPC-1. HPC-1,1' ensures a higher conversion, if all other conditions are equal. There are: 8 sets of graphs, 4 tables and 4 references, 1 of which is Soviet, 1 German, 1 American and 1 Japanese.

SUBMITTED: March 24, 1958

KOZULIN, N.A., prof.; SHAPIRO, A.Ya.; GAVURINA, R.K.; GRIVA, Z.I., red.; LEVIN, S.S., tekhn. red.; ERLIKH, Ye.Ya., tekhn. red.

[Equipment for the production and manufacture of plastic articles] Oborudovanie dlia proizvodstva i pererabotki plasticheskikh mass. Leningrad, Goskhimizdat, 1963. 792 p. (MIRA 17:1)